



ON THE IDENTITY OF THE BUTTERFLY KNOWN IN AUSTRALIA AS
HETERONYMPHA PHILEROPE BOISDUV., 1832.

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One of my tasks, when in London during 1936, was to ascertain, if possible, the precise locality in Australia at which the species described by Boisduval in 1832 as *Satyrus philerope* was obtained. This name has been applied to a species of *Heteronympha* allied to *H. merope* Fab., 1775. My investigations, however, have led me to the conclusion, as shown below, that the name *philerope* cannot be used for the species to which it has been applied for about 80 years and, indeed, must sink as a synonym of *Satyrus klugi* Guér., 1831.

It is well known that considerable confusion has arisen in regard to the insects obtained during the French voyages in the Pacific during the early years of last century. The localities are often interchanged, and sometimes the specimens collected on one voyage are mixed with those of another voyage. Then, again, different entomologists wrote on different voyages almost contemporaneously. The two voyages which form the basis of this discussion are the voyage of the '*Coquille*' and the voyage of the '*Astrolabe*'.

The only port in Australia touched at by the '*Coquille*' was Sydney, from 17 January to 22 March, 1824. Whilst at Sydney an excursion was made across the Blue Mts. to Bathurst. (*Narrative of Voyage of 'Coquille'*. Vol. 1, p. 240, by Lesson.) The butterflies of this expedition were first figured in colour on Insect Plates 13 to 18 in the years 1830 and 1831. The figures on the plates are very good, and there is no difficulty in recognizing the species. The names are given at the bottom of the plates and the new species are attributed to Guérin. The text was not published until 1838, when the descriptions are given in *Zoology* II, pt. 2. On page 272 Guérin states that Boisduval had at his disposal the specimens from the '*Coquille*'.

In Australia the '*Astrolabe*' called at King George's Sound, 7-25 Oct., 1826; Western Port, 12-19 Nov., 1826; Jervis Bay, 26-29 Nov., 1826; Port Jackson, 1-19 Dec., 1826; Hobart, Tasmania, 16 Dec., 1827, to 5 Jan., 1828. The butterflies were described by Boisduval in 1832 and, in addition to the species collected on the voyage of the '*Astrolabe*', he included species from other French voyages and the species described by Fabricius, Donovan, Leach, W. S. Macleay and others. He indeed produced a descriptive catalogue of the butterflies of the South Pacific as then known. In the text he mentions all the Pacific species of Guérin, figured on Plates 14, 15 and 16, using Guérin's names excepting *Argynnis gaberti*. He credits the names to Guérin, but does not quote the plate or figure. Of the figures on Plate 18 of the '*Coquille*', Boisduval mentions *coritus* and *poeta*, both of which he attributes to Guérin. It is an open question whether he actually saw these plates of the '*Coquille*' before he wrote the '*Astrolabe*' text or the specimens in the Paris Museum labelled by Guérin. I believe the first to be the case. Then, while

the catalogue of Boisduval was in the press, Plates 13, 14bis, 17, and probably 18 were published. The species on these plates are referred to in an "Avis", a page inserted, without pagination, just after the title page. Here Boisduval identifies some of his new species with those figured by Guérin on these plates, and says *S. klugi* Guér. is the same as *S. philerope* Boisd. He mentions that he had seen in the Museum the specimen of *cleotas* labelled *poeta* by Guérin, and is at a loss to understand why Guérin changed the name. When the text of the 'Coquille' was published in 1838, Guérin used the names given by Boisduval in preference to his own. On page 279 he gives *S. philerope* Bois. with *S. klugi* Guér. as a synonym.

On placing the above before Mr. F. Hemming, he gave it as his opinion that, as Boisduval himself had stated that his *S. philerope* was identical with *S. klugi* Guér., the name *philerope* must sink to *klugi*. This is confirmed by Guérin in 1838, and there seems to be no doubt that both Guérin and Boisduval saw the types. In all cases where the new species were given as identical in the two voyages by Boisduval, it should be noted that the name given by Guérin now takes precedence, excepting in the case of *klugi* and *philerope*, the name *philerope* being applied to a *Heteronympha* and not used as a synonym of *klugi*. Also, if Plate 17 of the 'Coquille', on which *klugi* is figured, had appeared earlier, Boisduval would have adopted that name in place of *philerope*.

It was then necessary to examine all the specimens that may have been obtained during the voyages of the 'Coquille' and the 'Astrolabe'. Fortunately, many years ago the Boisduval collection had become part of the Oberthur collection which, in 1927, was purchased by the British Museum of Natural History. The old specimens labelled *klugi*, *singa* (the male of *klugi*) and *philerope* were carefully examined, as well as five specimens from the Paris Museum, sent by M. F. le Cerf, who said that beyond these five specimens there were no other specimens unquestionably taken on the voyages of the 'Coquille' or 'Astrolabe'. Photographs of the labels in the British Museum were taken by Mr. N. D. Riley and submitted to M. R. Oberthur and M. F. le Cerf for their opinion on the handwriting.

It remains to be seen how the name *philerope* came to be used for an Australian species of *Heteronympha*. These species are all single brooded and have very definite times of appearance on the wing. The following are pertinent to the discussion.

Satyris klugi Guér. first appears on Insect Plate 17, fig. 2, 1831, in the 'Coquille' Atlas. No sex is stated, but the figure is of a female and must have come from the Blue Mts., as the figure agrees best with my series from there.

Satyris singa Boisd. is described from a single specimen in the 'Astrolabe', p. 145, 1832. This is a male and the other sex of *klugi*. It, no doubt, came from near Sydney as, with the exception of Hobart, the other ports of call by the 'Astrolabe' were too early for it to be on the wing. It is stated to resemble *merope*, and no ocelli are mentioned on the underside of the hindwing. There is a male in the British Museum labelled *singa* B.d. nle. holl., in what I believe to be Boisduval's writing, to which has been added, at a later date, *klugi* Gr. This is without doubt the holotype male of *singa*.

Satyris philerope Boisd. was described in the 'Astrolabe', two pages after *singa*, and is also stated to have a great resemblance to *merope*. The Latin and French descriptions do not quite accord. There is one ocellus on both wings on the upperside and on the underside of the forewing in the male, but the Latin description seems to suggest no ocellus on the underside of the hindwing, and the

French two ocelli. The female has definitely one ocellus on the upperside and underside of the forewings and two ocelli on both sides of the hindwing. The types are not available and are probably lost. Boisduval states in the "Avis" that this species is the same as *S. klugi* Guér.

When the text of the '*Coquille*' appeared in 1838, Guérin adopted the name *philerope* Bois. (Zoology, Vol. II, pt. 2, p. 279) and placed *klugi* as a synonym and copied Boisduval's Latin description only, giving the locality as near Port Jackson. Guérin also used Boisduval's names for other species in preference to his own.

In the Voyage of the '*Favorite*', Suppl., Pl. 3, Feisthamel gives a good figure of the male of *singa*, which is correct. Boisduval's description is copied, but the third word "fuscis" of the Latin description is inadvertently omitted. Regarding *philerope*, of which a figure is also given on Pl. 3, Boisduval's Latin description is copied, but the French is considerably altered. The male description does not refer to the *Heteronympha*, but the female description and figure certainly do. The figure is stated to be of a female variety, but it is a normal mainland female. On p. 16 the '*Coquille*' figure of *klugi* is incorrectly said to be a male.

In *Annals Magazine Nat. Hist.*, (3), xix, p. 125, 1867, Butler considered *philerope* Bois. to be a composite species, and incorrectly calls the '*Favorite*' figure of *philerope* a male. He then describes and figures what he considers the female *philerope*. His figure, description and the specimen still in the British Museum show it to be the female of *H. merope duboulayi* Butl., 1867. In a note to his male he states: "Dr. Boisduval, Guérin and Westwood have agreed in considering this to be the female of *klugi*, which belongs to another genus".

In his Catalogue of the Satyridae in the British Museum, 1868, Butler still considers *philerope* Boisd. a composite species (p. 100 and p. 166) and still considers the '*Favorite*' figure a male.

It will be seen from the above that there has been considerable confusion and the sex of various specimens has been incorrectly given. The puzzle is cleared up when it is seen that Guérin and Boisduval, and certainly Feisthamel, incorrectly considered the '*Coquille*' figure of *klugi* a male.

The specimens examined in London were as follows:

1. The holotype male *S. singa* Boisd. from the Boisduval collection, now in the British Museum.
2. A male from the Paris Museum with an old label by H. Lucas *singa* Bdv. This may be the original of the '*Favorite*' figure. It, like No. 1, is the male of *klugi*.
3. A female in the British Museum from the Boisduval collection with a label *Philerope* B. nll. Holl. This is not in the handwriting of Boisduval. It may be the specimen figured in the '*Favorite*' and is the female of the *Heteronympha* from the mainland. It has been incorrectly considered the allotype female in the British Museum.
4. A male of the Tasmanian race of the *Heteronympha* in the British Museum from the Boisduval collection with a label n. holland and a manuscript name in Boisduval's writing.
5. A female in the Paris Museum of the same race as No. 4 with the same manuscript name in the handwriting of H. Lucas.
6. A male from the Guenée collection in the British Museum with a label *Satyrus klugi* Guér. which is almost identical with No. 4 and is not *klugi* Guér. The label is in the handwriting of Guenée.

The available data as set out above lead to certain conclusions.

There is no evidence to show that the butterfly at present called *philerope* is really Boisduval's species. No example has been found in the Boisduval collection nor in the Paris Museum so labelled by him. Boisduval's description of his male *philerope* agrees better with the female of *klugi* in having one ocellus on the hindwing above and the colour of the hindwing below. Both male and female of the *Heteronympha* have two ocelli on the hindwing above, excepting in two specimens. The wavy lines are not black in the *Heteronympha* but, when they are present, are black in the female *klugi*.

It is my opinion that *philerope* Boisd. has for its male the female *klugi* and for its female either the male or the female of the *Heteronympha*. This will explain why Boisduval considered his *philerope* the same as *klugi* Guér. and also Feisthamel considering his figure of *philerope* to be a variety.

Since *philerope* is not a valid name, the *Heteronympha* that has for a long time borne that name requires a name, which is given below. The synonymy of the species concerned is also given.

XENICA KLUGI Guérin.

Satyryx klugi Guérin, 1831, Voy. Coquille, Atlas Plate 17, fig. 2 (female); *S. singa* Boisd., 1832, Voy. Astrolabe, Lep., p. 145 (male); *S. philerope* Boisd., 1832, l.c., p. 147 (part. female as male); *Xenica klugi* Guér., Waterh. and Lyell, Butterflies of Australia, 1914, p. 44, figs. 137, 138, 825 (males); *X. klugi* Guér., Seitz Macrolep., 1911, Vol. ix, p. 304, Pl. 93c.

This is one of the commonest Satyrids in Australia. It is found from southern Queensland throughout N. S. Wales within 150 miles of the coast, Victoria, South Australia, and coastal Western Australia. In more southern localities it occurs near the sea. It is also plentiful in Tasmania. I have recently examined more than 300 specimens, and in only two cases do I find a subapical ocellus on hindwing above. Although the two ocelli are present below, they are usually indistinct. This species does not show any marked geographical variation, but specimens from Western Australia are usually smaller than those from the east. The type locality is the Blue Mts., N. S. Wales.

In Western Australia an allied species, *X. minyas* Waterh. and Lyell, 1914, is found. It has the dorsum of forewing above yellow instead of brown-black. It is found earlier in the year than *klugi* and shows marked geographical variation.

HETERONYMPHA PENELOPE, n. sp.

H. philerope, auctorum; *Satyryx philerope* Boisd., 1832, female only; *H. philerope*, Butl., 1867, male only.

The male of this species can be readily recognized by the prominent sex mark occupying more than the basal half of the cell of the forewing above and reaching a prominent black cell spot. In bred specimens this sex mark is black, but it becomes duller with age. The upperside of the forewing is black with orange spots and a subapical ocellus. The hindwing is orange with termen and a short band beyond cell black, a prominent subternal ocellus and a variable smaller subapical ocellus. Beneath, the forewing is paler than above, with apex darker and with black spots, but without the sex mark so that the black cell spot is very conspicuous; a ringed subapical ocellus. Hindwing orange-brown with three red-brown wavy lines; a prominent ringed subternal ocellus and a smaller ringed subapical ocellus.

The female is somewhat similar to the male, but without the sex mark; there is a black basal streak in cell and another below cell. The spots above are usually

paler and smaller, that between the apex and subapical ocellus of forewing usually much darker. Ocelli as in male. Beneath, somewhat similar to the male, with the apex of forewing and the hindwing with a violet, pinkish or yellowish tint. The anal angle of the hindwing is slightly produced and the termen of hindwing wavy in Australian specimens.

Both sexes have a general resemblance to *H. merope* Fab., but it has not so extensive a range. It is found in the mountains of N. S. Wales and Victoria. Also at an altitude and at sea-level in Tasmania. It has not been found in South Australia or Western Australia as stated in Seitz, Vol. ix. It has developed races both in Australia and in Tasmania. It has only one brood and rarely appears on the wing before the middle of January. My earliest dates are Dec. 30 from near Dorrigo, N.S.W., 4,800 ft.; Jan. 23 from Hobart and Cradle Mt., 2,000 ft., in Tasmania. I have examined 50 specimens from N. S. Wales, 40 from Victoria and 40 from Tasmania.

The types of all the races are in the Australian Museum, Sydney.

H. PENELOPE PENELOPE, n. subsp.

Satyrus philerope. Feisthamel, 1839, Voyage Favorite, Suppt., p. 16, Pl. 3, fig. 2, female; *H. philerope*. Waterh., What Butterfly is That?, 1932, Pl. xv, fig. 4A, female.

This is the largest race. The male is much brighter than specimens from Victoria. The orange spot at end of cell of forewing is separated from the large subdorsal spot by a black bar; the subapical ocellus of the hindwing is sometimes without the white pupil. Beneath, the apex of forewing and the hindwing orange-brown, the remainder of the forewing yellow-brown with black spots; ocelli prominent.

The female above is much darker than the male and the spots are smaller and paler. The basal streaks in and below the cell of forewing are well defined, as is also that of the hindwing; ocelli as in male. Sometimes there is an additional small ocellus in area 5 of hindwing. Beneath, the markings as in male, but the apex of forewing and the hindwing usually with a purplish or pinkish tint of varying intensity, rarely yellowish-brown.

I have found this race commonly at Barrington Tops during the latter part of January and early in February. It was not seen during a visit in the middle of December. Holotype male, allotype female and paratypes are from this locality. I have a few specimens from New South Wales from Stonehenge (Mar.); Ebor 4,800 ft. (Dec. 30); Blue Mts. (Feb., Mar.); Moss Vale (Apr.) and Mt. Kosciusko 5,000 ft. (Feb.).

H. PENELOPE STEROPE, n. subsp.

H. philerope. Waterh. and Lyell, 1914, Butterflies of Australia, figs. 112-4, figs. 99, 116 aberrations; Waterh., What Butterfly is That?, 1932, Pl. xv, fig. 4, male.

The male of this race is shaped like that of the previous race, is smaller, the orange on the upperside is paler, and the spot at end of cell of the forewing is usually connected with the large subdorsal spot in 1a. The subapical ocellus of hindwing is small and in one case absent. Beneath, the colour is not so deep as in the typical race nor is there so much difference between the basal two-thirds of the forewing as compared with that of the hindwing. The figure in 'What Butterfly is That?' is much too dark.

The female has the spots of the upperside the same shade or darker and larger than those of the typical race. The spot between the apex and the subapical



ocellus of forewing above is darker than the other spots. Beneath, the purplish or pink tint is not so pronounced, most specimens having the apex of forewing and the hindwing yellowish-brown. The female has a greater resemblance to the male than is the case in the typical race. Several melanic specimens are known.

Holotype male, allotype female and paratypes from Gisborne, Victoria, where it is usually common from Jan. to March. I have it also from Fern Tree Gully.

H. PENELOPE ALOPE, n. subsp.

This is a still smaller race in which the black of the upperside is still further reduced. Both males in the Museum are without the subapical ocellus on the hindwing above. Beneath, the general colour is yellow-brown. I have only seen one female which approaches the more eastern Victorian race. It has a pale spot below the subapical ocellus of forewing above, a character sometimes found in females from Gisborne. Beneath, the spot below the subapical ocellus is almost white and the hindwing has a faint tint of purple. The ocelli are proportionately smaller than in *sterope*.

Two males and one female from Lorne, Victoria, in February and March.

H. PENELOPE DIEMENI, n. subsp.

This race resembles *sterope*, but the forewing is not so narrow nor the apex so pointed. The anal angle of the hindwing in the female is not so drawn out as in Australian specimens. It is also smaller.

In the male the spots above are not so bright as in the mainland races, the pale spot at end of cell of forewing is not connected to the large subdorsal spot in holotype but is connected in four of the fifteen males before me from the type locality. On the hindwing the subternal ocellus is prominent, but the subapical is small, without a pupil in the holotype, in two specimens it is absent and in six specimens an additional small ocellus is present in area 5. Beneath, this race is paler than the others, being yellowish-brown with the wavy lines on hindwing indistinct.

The female resembles the male much more than in the other races and has a cream spot below the subapical ocellus of forewing above. Two of the three females from the type locality have the underside of the hindwing yellowish-brown, the other suffused purple.

I have used the name *diemeni* as it was on some of Boisduval's labels on his Tasmanian specimens.

Holotype male, allotype female and paratypes from New Norfolk near Hobart in February; also from Hobart, Jan. 23; Mt. Wellington, 2,000 ft., in March; Dunally and Maria Is., in Feb.; I also place here a female from Launceston (Feb.) and a poor pair from Burnie (Mar.).

H. PENELOPE PANOPE, n. subsp.

This is the smallest and darkest race of all, and I have only males before me. On the upperside the orange spots are reduced in size and the spot below the subapical ocellus of the forewing is almost white in most specimens. Seven of the eight males before me have an additional ocellus in area 5 of the hindwing, and these both have a white pupil. On the underside the ocelli are well defined and are ringed and are the same number as above, the pale spot below the subapical ocellus of the forewing is even more prominent than above. The general colour of the apex of the forewing and the hindwing is reddish-brown. In the forewing the apex is less acute and the termen more bowed than in the Australian races.

Eight males from Cradle Mt., Tasmania, 2,000 ft., in January, and one male from Mt. Magnet, also in January.